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Hissar, near Almalí, may be that of the Alymala of Stephanus,\* of which Almalí seems to be a corruption. As to Cibyra itself, there is great reason to believe, with Mr. Hoskyn, that it must be sought for considerably to the northward of Tremili.†

Mr. Fellows, who followed an interesting route from near Œnoanda to Denizlí, near Laodiceia on the Lycus, in which he crossed the track of Corancez, and fell into that of Rawson at Karaeuk, observed the site of an ancient city near Turtukar, a village about midway between Œnoanda and Karaeuk (which latter is also an ancient site), and not far from the main branch of the Tálamàn-su towards its sources. This position corresponds with Cibyra, inasmuch as we are informed that the Indus had its origin in the mountains of the Cibratis (Plin. H. N. 5, 28), and that it flowed not far from Cibyra itself (Liv. 38, 14). But it is to be hoped that on the positions of Bubon, Cibyra, Sinda, and other places on the confines of Caria, Phrygia, and Pisidia, we shall derive some information from Lieutenant Spratt.

III.—*Expedition to the Lower Parts of the Barima and Guiana Rivers, in British Guiana.* By the Chevalier R. H. SCHOMBURGK. (Communicated by the Colonial Office.)

*River Manari (a tributary of the Barima),  
22nd June, 1841.*

THE expedition under my direction left Georgetown on the afternoon of the 19th of April, in the schooner *Home*, which had been chartered for the purpose of conveying us to the Waini, or Guiana. After a stormy passage, which the vessel and her crew appeared to be but ill calculated to encounter, we arrived, in the afternoon of the 21st of April, at the mouth of the Waini, where I resolved to disembark our baggage, and selected a bank composed of sand and shells, heaped up by the sea, as the site of our camp. With the exception of some provisions which were damaged, all our baggage was landed in good order.

I resolved on remaining at the mouth of the Waini long enough to fix the geographical situation of that point with some precision, and also to ascertain how far the entrance of the river was navigable. I accordingly commenced a survey, which was completed with the assistance of Mr. Glascott. Although shallows and sandbanks disqualify that river from becoming a resort for large vessels, it may serve for those of less draught; for during high-

\* Supposed by Dr. Cramer to be the same as the Amelas of Pliny.

† At Tremili we find the ancient name of a people or district attached to a modern town; a conversion, of which examples are found in other parts of Greece.

water there is a navigable channel of from 12 to 18 feet at the bar, and deeper in the basin. Its labours, however, like all tidal rivers along this coast, under the disadvantage that fresh water can only be procured at the distance that can be made in a boat with one tide in its favour.

During our sojourn at the shell-bank, I had to send a boat's crew to the river Aruka, a tributary of the Barima, in order to procure drinkable water, which occasioned, in part, the delay of a day and a half. The scarcity of water induced me to dispatch, on the 27th of April, part of our expedition, who were not engaged in the survey, to Cumaka, a settlement of Warran Indians, on the banks of the Aruka; and Mr. King, the superintendent of rivers and creeks, kindly took upon himself to command them. The remainder of the party followed on the 1st of May, after the survey had been completed.

On the 28th of April we received the visit of a Warran chieftain from the Canyaballi, a tributary of the Waini, and about two days' journey from its mouth, who, having heard of our arrival, came with part of his men to visit us. The captain is known among the colonists of this part under the name of Sam Peter, and appeared a very intelligent old man. During the time occupied by the survey the weather had changed, and it now became apparent that the short rainy season had set in. We ascended the Waini to the remarkable passage which connects that river with the Barima; and which, although not navigable for sailing vessels, affords a ready communication, in boats and canoes, between the two rivers. This natural channel may be compared, in some respects, to the Cassiquiare, which connects the Upper Orinoco with the Rio Negro, and it is known in the colony under the name of the Mora Creek. The Warran Indians, who inhabit these rivers, call it Morawan. Where we entered it from the Waini, I estimated its width at 110 feet, and near the entrance we found a depth of 16 feet. During the flow of the tide, the current sets from the Waini to the Barima, and with such a velocity that the steersman has to use precaution not to be swept against trees, which in one or two places obstruct the bed of the river, and are the more dangerous from the winding nature of the passage. Hence, though the depth would permit vessels of from 6 to 8 feet draught to navigate the Mora, its numerous windings and rapid tide render it only fit for boats and canoes. The ebb-tide sweeps with equal velocity through this natural channel, from the Barima to the Waini.

The Barima presented, where we entered it from the Mora, the appearance of a much larger river than I had expected. I estimated its breadth at 700 feet. Its water, still subject to the influence of the tides, was of a dark colour, and its depth from 18 to







Part of  
GUIANA  
to illustrate the excursions of  
The Chevalier Robt. H. Schomburgk  
in 1841.

24 feet. About 5 miles from the junction of the Mora, the river Aruka flows into the Barima on its left bank. The two rivers, before they unite, are nearly of equal breadth—about 400 feet each. The Aruka has yellowish muddy water. A few houses, inhabited by Warran Indians, are within a short distance of the confluence of the Aruka with the Barima. They, with others who inhabit the Lower Aruka, acknowledge a Warran by the name of William as their chieftain, who resides at the small brook Atopani.

We followed Mr. King to the Warran settlement Cumaka, which is within a short distance of Atopani, and landed there in the evening. We found a large assemblage of Warrans, with their chieftain, William. The Indians were suffering, to an extent painful to behold, from ophthalmia. My previous excursions have made me acquainted with various tribes who inhabit British Guiana or the adjacent territories; but though that disease is by no means unusual among them, I nowhere saw it so frightfully exhibited as here, where at least 50 per cent. of the inhabitants are labouring under it, or have had their eyesight impaired by it. I ascribe it to their inhabiting the low marshy grounds, where it appears they are more subject to colds than in the open savannahs or on the high mountains, and to carelessness.

Cumaka is situated on rising ground. These hillocks, which are the first high ground from the sea inland, form a small chain that extends in a western direction: they are composed of indurated clay, highly ochreous; and, to judge from their vegetation, and the provision-grounds of the Indians on their declivities, the soil is fertile. It is only here that the vegetation on the banks of the river begins to change. Hitherto it consisted of curida and mangrove trees, and numerous manicole palms; but when we had reached the rising ground, we observed noble forest-trees—as, for example, the crab-nut tree, useful for building material; locust, curaliara, siruaballia, soriari, and others. From the curaliara the Warrans prepare canoes and corials; and from the size of these I judge of the height of the trees from which they are made.

Several of the crew were indisposed, and the first coxswain dangerously ill. It was therefore necessary to make a stay of some days at Cumaka, to restore the health of the sick. The skill and assiduity of Mr. Echlin—who accompanied the expedition as artist, but who, by attending the colonial hospitals, has acquired medical knowledge—were therefore in constant requisition. I employed the interval to determine the geographical situation of Cumaka, as a point in the interior on which to rest our pending operations, and to calculate and draw the plan of the river Waini. A native Warran, who spoke the English language imperfectly, was engaged as interpreter.

I resolved, as soon as the general health of my crew was restored, to proceed to the mouth of the Barima for the purpose of examining that part of the river. I engaged six Warran Indians, under the command of the chieftain's son, to accompany us, and we set out on our journey on the 10th of May; and having paddled through the greater part of the night, we landed the following day at the mouth of the Barima, where we encamped not far from Point Barima, on the right bank of the river.

The survey of this river was commenced on the 12th of May. The peculiar features of the river Barima, near its mouth, rendered it difficult to fix on a base-line for the survey. I resolved, therefore, to determine the respective distances of some of its chief points from each other, by intervals, noted by chronometer, between the flashes and reports of guns fired from three stations. Mr. Superintendent King offered his services to the assistant-surveyor, Mr. Glascott, in firing the guns on the 18th of May, when, I am sorry to say, he experienced a severe temporary injury by the explosion of one of them. The survey of the Barima was finished by the 19th of May. It is apparent, from an inspection of the map, that the Barima, near its mouth, labours under similar disadvantages with the Waini; but, if once entered, it offers an uninterrupted navigation to vessels of from 250 to 300 tons burthen, from its mouth to the junction of the Aruka. Indeed, a finer river for steamers could not be desired. Its banks are, however, marshy to its junction with the Aruka; and so much subjected to the tide, that we could not find any spot fit for our night-quarters. It would cost the same labour and expense to bring the lower tracts into cultivation that were required to render the coast land of Demerara arable and productive. Of the upper regions, which I have not yet visited, I can say nothing.

If the difficulty of procuring at all times sweet water could be overcome by building tanks, &c., the Barima and the Waini would offer excellent fishing stations; and the easy communication, either by the sea or by the Mora passage, between these rivers, increases their importance in this point of view. The fish known under the name of querrunai in the colony abounds in these estuaries, and its value is acknowledged, as one in its dry state brings in the market of Georgetown from five to six *bits* (1s. 9d. to 2s. 3d.). Of equal, if not greater, value is the morocotto, which frequents the rivers that fall into the Orinoco, and weighs when taken from 10 to 12 lbs. I consider it of importance to point out every resource that the country possesses. These fisheries, if followed up in a proper manner, would no doubt become a useful branch of internal commerce.

The unsettled state of the weather during the period we en-

camped on the Barima made our astronomical observations very precarious. Mr. Glascott and myself, however, succeeded in fixing the situation of the camp to our satisfaction; but, much as I should have liked to extend the survey of the mouth of the Barima to the Boca de Navios of the Orinoco, the unfavourable weather, the state of my crew's health, and the delay which it would have occasioned, prevented me from executing a work which I regard as generally useful to navigation.

We left the mouth of the river Barima on the 20th of May, and arrived at Cumaka, which we had selected as our dépôt, on the following day.

The exposure to the heavy rains, which had set in, did not fail to show its influence on the crew, and five were reported on the sick list. The 27th of May arrived, therefore, before we could start for the Amacura. Mr. Glascott, the assistant-surveyor, being indisposed, he remained at Cumaka, and I was only accompanied by Mr. Echlin.

Thirteen miles from Cumaka, in a southern direction, the Aruka is joined by the Aruau, by means of which the portage is reached which forms the communication between the rivers Aruka and Amacura. I resolved, however, to follow the Aruka some distance beyond the junction, in order to visit a Warran settlement, and to become acquainted with the character of the upper course of that river. It decreases materially in size, being scarcely more than 30 yards across; its banks, still swampy, are studded with manicole and truti palms, along the stems of which we saw the aromatic vanilla trailing in large quantities, forming natural festoons, and its numerous white flowers diffusing a delicious perfume. The water of the river was of a jet-black, and so clear, that it was difficult to detect where the reflected image, which the trees and shrubs bordering its banks cast into the river, separated from the real object. It was late in the evening before we reached the Warran settlement, which consisted of eighteen individuals. Another village of fifteen inhabitants was higher up, which, it appears, is the highest inhabited place on the Aruka; that river having its source about 15 miles farther S.

The inadequacy of my crew for the pending journey, in consequence of several having been left sick at Cumaka, made it necessary that I should engage some Indians to assist in transporting the corial across the portage and through the smaller creeks, and three Warrans were accordingly engaged for that purpose.

We returned next morning to the junction of the Aruau with the Aruka, and, following the former river upwards, reached in the evening the portage, whence we had to transport the corial to one of the rivulets which flow into the Amacura. The ground



risers here to about 40 or 50 feet, and, extending from N.W. to S.E., forms the watershed between the small streams which flow into the Amacura and the Barima. The portage is somewhat more than a mile long, in a S.W. direction. The size of our boat, and the narrowness of the path, were such, nevertheless, that our crew were occupied nearly two days ere they had got the corial across to the river Yarikita, which falls into the Amacura. The soil consisted of rich loam; and I observed several trees useful for naval and civil architecture, as the crab-wood, siruadallia, soriari, mora, and many others. One of the mora-trees astonished me by its gigantic size.

If a more dense population and increased industry were to render it expedient, there would be little or no difficulty in connecting, by means of a permanent watercourse, the river Barima with the Amacura. This might be effected by cutting a canal across the portage. The soil, as already observed, is an ochreous clay, and, with the exception of a few blocks of granite, which no doubt have been transported by water, there is no rock *in situ* that appears to offer obstructions to such an undertaking. The course of the Yarikita is W.N.W. towards its junction with the Amacura. After having been joined on its left bank by the small rivers Waina and Wayuma, it increases considerably in size. The botanist would have been here much delighted by a diversified and interesting Flora. Orchideous plants, the *Peristeria* (or flower of the Holy Spirit); several *Epidendra*, with scarlet blossoms; and many others of equal interest, adorned the trees. A *Crucian* with white flowers and a delicious perfume bordered the banks; *Bignoniacea* trailed along the trees; and the *Braonea racemosa*, which has been compared to our rose, added to the variety by its bright scarlet colour, especially when contrasted with the green of the surrounding shrubs and trees. The river is subjected to the influence of the tide, which, it appears, rises here about 2 feet. A short distance from its junction with the Amacura there are some hills on its right bank, of the height of about 500 feet. They are called Manibari, and were the highest we had seen since we left Demerara. On the left bank, and close to the confluence, is the hillock Arikita, less elevated than the former. We entered the Amacura at two o'clock in the afternoon, and, following its course downwards, reached at five o'clock in the evening the mouth of the rivulet Otucamabo, flowing into the Amacura on the right or eastern bank.

We ascended it, in order to pay a visit to Assecura, a settlement of Arawaaks and Warrans, under the Arawaak chieftain Jan. We were received in a very friendly manner; and found in him an intelligent man, who spoke the Creol-Dutch perfectly. The settlement consisted mostly of Arawaaks, and only a few Warrans.

The greater cleanliness in person of the former, compared with the latter, was striking. We did not observe among any of the Arawaaks (whether children or adults) those tumours which are caused by an accumulation of chigoes, and which, being neglected to be extracted in time, render many of the Warran children lame: indeed, as the chigoes penetrate other parts as well as the feet, these poor children not only suffer the greatest pain by the neglect of their parents, but are rendered in their appearance positively offensive. This was not the case with the Arawaaks, among whom the filthy state of the Warrans is proverbial; nor did they suffer from those ophthalmic complaints, which I have mentioned as being so common to the Warrans of these rivers, and of which the extent has been under-rated in the statements that even fifty per cent. of them suffer under it.

With Captain Jan of Assecura as a guide, and our crew increased by several of his followers, we left the settlement on the 2nd of June, and now ascended the Amacura. After having passed the Yarikita, which we had descended two days previously, we found that the Amacura decreased materially in size, shrinking in the course of the day to a mere stream. We ascended at five o'clock in the evening the stream Curriyabo, which joins the Amacura on its western bank, where we intended to halt during the night at a Warran settlement, it having rained incessantly and in torrents during the whole day.

The Indians have all withdrawn from the banks of the Amacura, and selected small streams for establishing their settlements upon. These streams are almost allowed to be grown over, so those only who are well acquainted with their navigation would suppose them to be inhabited by human beings, or be able to reach their abodes. The intricate navigation rendered it very difficult to make any progress in our large boat.

The settlement consisted of only twelve individuals; but there are several other settlements in the vicinity; and about forty Caribs live in the neighbourhood. The whole population, including the Caribs, amounts nearly to ninety persons.

The next day (June 3rd) proved so rainy that we were obliged to remain stationary. We started, however, on the 4th of June, to continue the survey of the Amacura to its falls or rapids, which are caused by a ledge of granitic rocks that cross the river, and impede its farther navigation. It had dwindled, the previous day, to a stream; but the torrents of rain which had fallen lately rendered it impetuous in its course. Near its mouth the Curriyabo is only divided by a short neck of land from the Amacura, which latter river has still low banks, and is quite serpentine. As we advanced I found its banks increase in height, and become

studded with noble forest-trees. The gorgeous flowers of the *Brownea racemosa* and *Gustavia angustifolia* were so abundant that they added considerably to the beauty of the sylvan scenery.

A few miles above the junction of the Curriyabo with the Amacura, the stream *Tusa* joins the latter river on its right bank. It appeared to be of the same size as the Amacura. The course of the Amacura is much farther westward in ascending than it is laid down on the maps. Our course was to-day generally W.S.W. to the fall of Cuyurara. This fall is about 12 feet in perpendicular height; two other falls are higher up; and the whole descent may amount to about 30 feet. The small size of the river renders the aspect of the falls by no means imposing; and it may be said that the Amacura, above its junction with the Yarakita, is only fit for the navigation of the small boats of the Indians.

We did not proceed farther, which in our large boat would have been impracticable; nor did it appear to me that I was so far warranted in risking the health of the individuals who accompanied me, as to prosecute the stream's course in small boats, where protection against the inclemency of the rain proved impossible. Astronomical observations were out of the question; for, from the time of our departure from Cumaka, we had seen neither sun nor stars. There are no more inhabitants at the banks of the Amacura than on its tributaries beyond the junction of the Curriyabo; and, according to the evidence of the Indians, who pretended to have been at the source of the Amacura, it is about 2 days' journey, in their small boats, above the fall Cuyurara. The 5th of June saw us on our return to Assecura.

On leaving Cumaka I had only provided myself with a chronometer, a sextant, an artificial horizon, and prismatic compass. The unfavourable state of the weather enabled me only to procure one observation of the sun for the chronometer on the morning of the 6th of June; and ten days having elapsed without any intermediate observations, I could not depend upon its rate. However, I had desired Mr. Glascott (who in consequence of indisposition had remained at Cumaka) to fire, at 6 o'clock on the evening of the 6th of June, three guns, which we distinctly heard at Assecura. We thus procured the direct compass-bearing of Cumaka; and combining this with my observations for latitude, I obtained, as the result, the difference of longitude between Cumaka and Assecura.

I was fortunate enough to procure here and at the Upper Amacura a large supply of Indian provisions, for which we paid, to the full satisfaction of the Indians, in such articles as they most desired—namely, cutlasses, knives, calico, salem pores, beads, &c. The provisions which we had brought with us from George Town

being nearly exhausted, this supply was very welcome; and as I had received information from Mr. Glascott and his party at Cumaka that they were short of provisions, I despatched a large supply by two small canoes, across the portage of Yarikita.

We left on the 7th of June, on our farther descent to the mouth of Amacura. The Arawaak, Captain Jan, who went with us to the Upper Amacura, and who proved himself very useful and intelligent, accompanied us farther, as his knowledge of the localities, and the names of streams which fall into the Amacura, rendered his services valuable. The streams which join the river from its eastern or right bank are very numerous; and it increases materially in breadth: I state its average depth at its lower course as 18 feet, though there are places which much exceed that depth. A peculiar feature in this river are large patches, consisting of matted grass, the splendid blue water-lily (*Ponthederia azurea*), and several other water-plants, which, torn off by the increased stream during the rainy season, come floating down with the current, and reaching that part of the river where it is subjected to the tides, they are carried to and fro, as the tide may be flowing or falling. We might have numbered thousands of these little floating islands. We reached, in the afternoon at 3 o'clock, the Coyuni, which, like the Mora from the Waini to the Barima, and *vice versa*, offers an uninterrupted passage in canoes from the Amacura to the Araturi. The Coyuni connects the Amacura with the Waicaicaru or Bassama, which falls into the Araturi. This river flows, opposite the island Smataca, into the Orinoco; and is another instance of a remarkable connexion between the tidal rivers of this coast.

There is no doubt that the Amacura is navigable for smaller vessels and steamers to the Yarikita; the bar at its mouth, and the inconsiderable breadth, which seldom amounts to more than 300 yards, render it unfit for larger vessels. It abounds in that delicious fish morocotto.

It was late in the evening before we reached the mouth of the Amacura. We arrived on the 10th of June at Cumaka, where, to my great satisfaction, I found the invalids mostly restored, and Mr. Superintendent King rejoicing in his recovered eyesight.

Although the rainy reason has for some time past set in, and although our stores are materially reduced, and we have been deprived of many comforts, I yet deem it my duty to persevere, and continue the survey to the Cuyuni. The two large corials, which we are not able to transport across the sand, have received orders to proceed round the coast to Essequibo, and to remain at Bartika point, while the coxswain was to meet us with some small canoes, and a supply of the most necessary provisions, on the

Cuyuni. As far as I can foresee, three or four weeks may elapse before the expedition can return, for refitting, to George Town. The map will point out more clearly the route which we have taken; though I cannot omit to observe that more unfavourable weather for astronomical observations we could not have had than we have experienced during this expedition.

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IV.—*Excursion up the Barima and Cuyuni Rivers, in British Guiana, in 1841.* By the Chevalier R. H. SCHOMBURGK. Communicated by the Colonial Office.

*Demerara, August, 1841.*

THE party under my command left Cumaka, where we had sojourned for some time, on the 15th June, and having arrived at the junction of the Aruka with the Barima, we continued the ascent of the latter river in an east-south-eastern direction: we reached, next day, its junction with the Kaituma, which falls in on the left bank from the S.; and is at its mouth about 200 feet wide. The Kaituma is inhabited by Warran and Waika Indians; and is connected with the upper Barima by several intermediate brooks.

Numerous rivulets join the Barima on both its banks; some of them inhabited by Warrans. It has still, however, the appearance of a tidal river, being margined by mangrove and curida bushes, over which manicole and truli palms raise their heads. Its banks form continued swamps, which only can be made arable through the industry of man.

We encamped in the night between the 15th and 16th of June at a Warran settlement, the chieftain of which called himself Marawari. The noise of the Indian drum and songs, on our approach, announced that the inhabitants were revelling; and on landing we had sufficient evidence that Marawari was intoxicated. One of his wives was in the same state; and thus we witnessed, for the first time since we had left the European settlements, the effects of that horrible vice, drunkenness. Marawari's settlement consisted of five huts, surrounded by rich provision-grounds; and I observed with pleasure some lemon and lime trees near the houses. Their provision-fields abounded in cashew-nuts (*Anacardium occidentale*).

We passed, on the following day, the small river Maruiwa, or Whomana, which, by the interlacing of a number of other rivulets, affords a passage in boats from the Barima to the Waini, a journey which the Indians effect generally in two days. At a short distance